

Changkat Changi Secondary School
Physics Department

Unit 6: Energy, work and power

Name: _____ Class: _____ Date: _____

Worksheet 6.1 / 6.2

Section A—Multiple Choice Questions

1. What is energy?

A the capacity to do work	B the speed at which work is done
C the amount of force exerted	D the rate of force exerted

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2. Which type of energy depends upon the speed of a moving body?

A chemical	B kinetic	C geothermal	D potential
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3. When a moving car is brought smoothly to rest by application of the brakes, the kinetic energy of the car is mostly converted to

A potential energy in the engine.	B heat in the brakes.
C sound energy.	D heat in the surface of the road.

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4. On braking, 500 kJ of thermal energy were produced when a vehicle of total mass 1 600 kg was brought to rest on a level road. The speed of the vehicle just before the brakes were applied was

A 0.79 m/s	B 25 m/s	C 0.62 m/s	D 62.5 m/s
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5. When a mass of 0.09 kg is raised vertically through a distance of 10 metres, the gain in potential energy in lifting is

A 0.9 joule	B 9 joules	C 90 joules	D 900 joules
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6. A ball of mass 0.2 kg is thrown to a height of 15 m.
What is the change in its gravitational potential energy? ($g = 10 \text{ N/kg}$)

A 0.3 J	B 3.0 J	C 7.5 J	D 30 J
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7. A ball is dropped from a certain height. Which of the following shows the change in kinetic and potential energy as the ball falls?

	<i>kinetic energy</i>	<i>potential energy</i>	
A	increase	increase	
B	decrease	decrease	
C	no change	no change	
D	increase	decrease	()

Section B Structured Questions

11. A car of mass 600 kg is travelling at 20 m s^{-1} .

(a) Calculate the kinetic energy of the car.

(b) What happens to this energy when the brakes are applied?

12. A football of mass 0.4 kg falls from a height of 5 m above the ground.

Find

(a) the potential energy of the ball before it falls,

(b) the kinetic energy of the ball just before hitting the ground if all there is no energy lost,

13. A pendulum bob is attached to a light string and released from rest at position X. It makes one oscillation from position X to Y to Z and back to X.

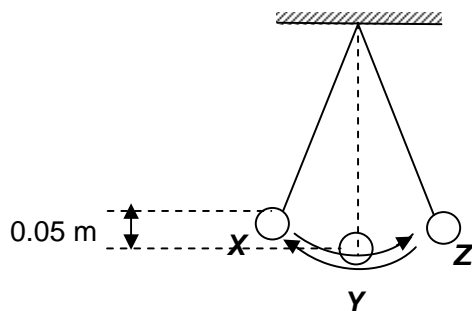


Fig 4

(a) If the mass of the bob is 0.1kg, calculate the gain in gravitational potential energy as the bob is moved from X to Y. Take g to be 10 N/kg .

(b) Considering no other energy losses, what is the kinetic energy of the bob as it passes Y?

(c) Hence, calculate the speed of the bob as it passes Y.